

TEST REPORT FOR
PDG Astrotilt (adult folding)
MANUAL WHEELCHAIR

TEST DOCUMENTS
AS3695:1992, AS3696-1:1990, AS 3696-3:1990, AS 3696-5:1989, AS 3696-8:1998,
ISO 7176-7:1996

LABORATORY REFERENCE
490996

27th April 2006

TEST REPORT

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Job no: 490996

PRODUCT

Name and Model No
PDG Astrotilt (adult folding)

Serial no(s) of test sample
19069

Maximum user mass
100 kg

Documents used in testing
AS3695:1992, AS3696-1:1990, AS 3696-3:1990, AS 3696-5:1989, AS 3696-8:1998, ISO 7176-7:1996

SUPPLIER

Name
Product Design Group Inc.

Address
102-366 E Kent Ave S
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Canada V5X 4N6
Telephone:
604 323 9220



Contact person: Torr Brown

Order No.: ISO testing

Order Date: NA

TESTING AUTHORITY

NovitaTech, NovitaTech Engineering.
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Dates of testing period: December 2005 – April 2006
Date of issue of this report: 27th April 2006

AS3695:1992, AS3696.1:1990 – DETERMINATION OF STATIC STABILITY , MARKING AND LABELING

Test	Stability limits Max./Min.	Stability limits before action (if any) to prevent sliding, description of action Max./Min	Specification according to AS3695	Reference in clause of AS3695	Reference in clause of AS3696.1
Stability facing up slope, brakes on	11°/0°	NA	>10°	6.1	7.1
Stability facing down slope, brakes on	>15°	skids @ 12° without 40mm bars	>10°	6.1	7.1
Stability facing up slope, brakes off	13°/0°	NA	>10°	6.1	7.2
Stability across slope, brakes on	13°	NA	>10°	6.1	7.3
Stability in other critical directions	NA	NA	>10°	6.1	7.4

Performance Requirements (AS3695, Clauses 6.1, 8.1 (f), 8.1 (h))

The chair was tested with a carry bag loaded to the maximum stated weight if supplied with the chair, or hooks or the like are provided	NA
The wheelchair shall be permanently marked	Yes
The wheelchair is permanently marked "CAUTION – Limited stability wheelchair – Tips on a slope of less than 10°"	Yes

Remarks:

None. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3696.1-1990 and AS3695-1992 (except the methods indicated in this report as "not tested" and/or tested with deviations) for users up to 100 kg

Yes

AS3695:1992, AS3696.3, 1990 – DETERMINATION OF BRAKE EFFICIENCY, PARKING BRAKE TEST

Test	Measured critical value	Type of failure: brake failure, skidding or tipping	Specification according to AS3695	Reference in clause of AS3695	Reference in clause of AS3696.3
Parking brakes facing down slope	12°	skidding	>10°	6.3.1	7.1.1
Parking brakes facing up slope	11°	tipping	>10°	6.3.1	7.1.2
Force to apply brakes	40N				7.1.4

Remarks:

None. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3696.3-1990 and AS3695-1992 (except the methods indicated in this report as “not tested” and/or tested with deviations) for users up to 100 kg

Yes

AS3695:1992, AS3696.5:1989 – OVERALL DIMENSIONS, MASS AND TURNING SPACE

Overall dimensions (Clause 5 of AS3696.3)					
Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5	Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5
Dimensions ready for occupation		5.1	Folded dimensions		5.2
Length, mm	1120-1350	5.1.1	Min. folded length, mm	740	5.2.1
Length (no footrest or support), mm	980	5.1.2	Min. folded width, mm	460	5.2.2
Width, mm	690	5.1.3	Min. folded height, mm	590	5.2.3
Overall height, mm	600-955	5.1.4	Min folded volume, cu.m.	0.2	5.2.4

Mass, to the nearest kg	Measured value	Reference in clause of AS3696.5	Dimensions, to the nearest 10mm	Measured value	Reference in clause of AS3696.5
Mass	23.5	6	Turning space		7
			Min. turning radius, mm	720	7.1
			Min. turn between walls, mm	1180	7.2

Remarks:

None. End of remarks -----

AS3695:1992, ISO 7176.7:1996 – SEATING AND WHEEL DIMENSIONS, CLAUSE 4.6 - DIMENSIONS

Dimensions (Clause 4.6 of ISO DIS 7176.7)					
Dimension	Measured values Min/Max	Reference dimension in ISO DIS 7176.7	Dimension	Measured values Min/Max	Reference dimension in ISO DIS 7176.7
Seat plane angle, °	3.3-47.7	1	effective seat depth, mm	415	2
Max. seat width, mm	355	3	effective seat width, mm	423	4
Seat surface height, front edge, mm	390-460	5	backrest angle, °	-4.9/-42.2	6
Backrest height, mm	510	7	backrest width, mm	360	8
Headrest in front of backrest, mm	NA	9	headrest height above seat, mm	NA	10
Footrest to seat, mm	350	11	footrest clearance, mm	20-280	12
Footrest length, mm	190	13	footrest to leg angle, °	112	14
Leg to seat surface angle, °	110	15	armrest height, mm	240/315	16
Front of armrest to backrest, mm	375	17	armrest length, mm	280	18
Armrest width, mm	85	19	armrest angle, °	6	20
Distance between armrests, mm	370	21	front location of armrest structure, mm	375	22
Handrim diameter, mm	NA	23	propelling wheel diameter, mm	305	24
Horizontal location of axle, mm	-1	25	vertical location of wheel axle, mm	165	26

The size of RLG: **Adult**

Remarks:

None. End of remarks -----

AS3695:1992, AS3696.8:1998 – STATIC, IMPACT AND FATIGUE TESTS

List of failures (AS3695, Clause 6.4)

Mode	Failure description
a	Components of the wheelchair are fractured or have visible cracks (except cracks in surface finishes)
b	Any nut, bolt, screw, locking pin, adjustable component or similar item become detached after having been tightened, adjusted or refitted once. (Footrests may be adjusted after each of the two footrest impact tests)
d	Parts intended to be removable, folding or adjustable do not operate as described by the manufacturer
f	Handgrips are displaced
g	Any multiposition or adjustable component is displaced from the present position (except as permitted in (b))
h	Deformation, free play or loss of adjustment of any component or assembly, that adversely affects the function of the wheelchair

Test method for static strength	Actual force, N	Specification according to a table of AS3696.8			Mode of failure (see list of failures above)	Reference in AS3696.8
		Table	Force, for 100kg user mass, N			
Armrest resistance to downward forces (NO DUMMY)	1520	2	760		None	8.4
Footrest resistance to downward forces (NO DUMMY)	1000	3	1000		None	8.5
Tipping levers downwards load (DUMMY FITTED)	1000	4	1000		None	8.6
Handgrips (DUMMY FITTED)	NA	5	750		NA	8.7
Armrests resistance to upward forces (DUMMY FITTED)	895	6	895		None	8.8
Footrest resistance to upward forces (DUMMY FITTED)	880	7	440 each		None	8.9
Push handle resistance to upward load (DUMMY FITTED)	1770	8	880 each		None	8.10

Remarks:

End of remarks -----

AS 3695, WHEELCHAIRS – STANDARD TEST FORM

Job Number: 490996

Test method for impact strength	Mode of failure (see list of failures above)	Reference in AS3696.8
Backrest resistance to impact (DUMMY THIGHS ONLY FITTED)	None	9.3
Handrim resistance to impact (DUMMY FITTED)	NA	9.4
Castors (DUMMY FITTED)	None	9.5
Footrests resistance to lateral impact (DUMMY FITTED)	None	9.6.3
Footrests resistance to longitudinal impact (DUMMY FITTED)	None	9.6.4
Front structure resistance to frontal impact (DUMMY FITTED)	NA	9.7.2
Front structure resistance to offset impact (DUMMY FITTED)	NA	9.7.3

Remarks:

None. End of remarks -----

Test method for fatigue strength	Actual number of cycles	Specification according to a table of AS3696.8, number of cycles	Mode of failure (see list of failures above)	Reference in AS3696.8
Two drum test	200,000	200,000	None	10.4
Drop test	6,666	6,666	None	10.5

Remarks:

None. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3696.8-1998 and AS3695-1992 (except the methods indicated in this report as “not tested” and/or tested with deviations) for users up to 100 kg

Yes

AS3695:1992, Clause 5 –DESIGN AND CONSTRUCTION REQUIREMENTS

The sample satisfies Design and Construction requirements for protuberances (AS3695, Clause 5.1)	
Burrs or sharp edges on accessible parts of the wheelchair	Yes
The sample satisfies Design and construction requirements for footrests (AS3695, Clause 5.6)	
For swinging and removable footrests the locking mechanism is positive, easily moved and operated	Yes
Movement greater than 10mm when the footrest is loaded and when a horizontal load of 100N is applied in any direction	Yes

Remarks:

None. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3695-1992 (except the methods indicated in this report as "not tested" and/or tested with deviations)

Yes

AS3695:1992, Clause 4 – MATERIALS

The sample satisfies Materials requirements (AS3695, Clause 4.1, 4.2 and 4.3)	
All metal parts are made of corrosion-resistant material or are protected against corrosion	Not tested
Stainless steel – the surface finish of uncoated stainless steel comply with the requirements for finish No. 4 of AS 1449	Not tested
Electroplated coatings of nickel and chromium – nickel and chromium electroplating comply with the requirements for Service Condition No. 3 (Severe) of AS 1192	Not tested
Anodised finish – anodised aluminium frames are anodised in accordance with the requirements for Grade 4 (minimum average thickness 10 µm) of AS 1956	Not tested
Upholstered components of the wheelchair show neither progressive smouldering nor flaming when tested in accordance with AS 3744.2	Yes*

Remarks:

* Upholstered components of the wheelchair met the requirements for ignitability of State of California Technical Bulletin 117 Section D (more rigorous than AS3774.1) when tested by Intertek Testing Services NA Ltd, Test Report No. 3072852, March 02, 2005.

Corrosion, surface finish and coatings were not assessed. End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3695-1992 (ignitability only)

Yes

AS3695:1992, Clauses 8 and 9 – MARKING AND INFORMATIVE LABELING

Requirements	Result of verification	Reference in AS3695
The following information is plainly marked in a permanent manner on the sample:		8.1
The registered trade name or trademark of the manufacturer	Yes	8.1 (a)
The name and address of the Australian distributor or a space allocated for the name and address of the Australian distributor are marked on the wheelchair	Yes	8.1 (b)
The model designation and serial number of the wheelchair	Yes	8.1 (c)
Any appropriate cautions and warnings	Yes	8.1 (d)
Recommended maximum weight of the user	Yes	8.1 (e)
If a carry bag is supplied with the wheelchair, or hooks or the like are provided for a carry bag, a statement giving the maximum load to be carried	NA	8.1 (h)
Tyres if pneumatic are marked with the size and recommended inflation pressure in kPa	Yes	8.2
The following information is available to the purchaser, and is printed in English:		9.1
Specification information for the wheelchair including		9.1 (a)
The model designation or any other information that will uniquely identify the wheelchair	Yes	9.1 (a) (i)
The mass of the test dummy or human equivalent (if used)	Yes	9.1 (a) (ii)
The information on the performance attributes of the test wheelchair, i.e. test results of <i>static stability</i> tests (AS 3696.1), <i>determination of the efficiency of brakes</i> tests (AS3696.3) and <i>static, impact and fatigue</i> tests (AS3696.8), <i>dimensional attributes of the wheelchair</i> (AS3696.5 and ISO7176.7).	Yes	9.1 (a) (iii)
A statement as to which features and options are included in a specific wheelchair	Yes	9.1 (b)
A description of the intended user, including but not limited to maximum recommended weight	Yes	9.1 (c)
Details of the warranty or, where no warranty is provided, a clear statement to that effect	Yes	9.1 (d)
Information on how to get repairs and service	Yes	9.1 (e)
Information as to whether a service manual is available	Yes	9.1 (f)
Additional information is available on request, i.e. in addition to the minimum information contained in the specification sheets, the manufacturer or importer makes available, on request, all information resulting from testing to this Standard	Yes	9.2
At least one copy of the user's manual is supplied with each wheelchair sold	Yes	9.3.1
When illustrations show components that are referred to in the text of the user's manual, these components are numbered or named for positive identification, illustrations are numbered or named for positive identification	Yes	9.3.2
Warranty statements are included as part of the user's manual	Yes	9.3.3
The following information concerning the general characteristics of the wheelchair is included in the user's manual:		9.3.4
A physical description of the wheelchair accompanied by photographs or drawings of the wheelchair and a non-technical description of how the wheelchair is intended to be used	Yes	9.3.4 (a)
A description of the intended user, including but not limited to maximum weight	Yes	9.3.4 (b)

AS3695:1992, Clauses 8 and 9 – MARKING AND INFORMATIVE LABELING (CONT.)

Requirements	Result of verification	Reference in AS3695
The environment in which the wheelchair is intended to be used and a description of any environmental conditions such as temperature and humidity that might be harmful to the wheelchair	Yes	9.3.4 (c)
A complete list of all accessories and tools that are supplied with the wheelchair	Yes	9.3.4 (d)
If a wheelchair or accessory is marketed as user-installed or assembled, then the user's manual for that wheelchair includes the following information:		9.3.5
A list of components	Yes	9.3.5 (a)
Information about any tools or equipment needed to assemble the wheelchair and its accessories	Yes	9.3.5 (b)
Instructions for assembling, installing and removing any accessories supplied by the manufacturer	Yes	9.3.5 (c)
Instructions on how to prepare the wheelchair for storage, shipment or travel	Yes	9.3.5 (d)
The following information required for operating the wheelchair is included in the user's manual:		9.3.6
Complete operating instructions including instructions for operation of the wheelchair on surfaces likely to be encountered by the user, supplemented by appropriate illustrations, e.g. depicting the wheelchair on ramps, steep terrain, kerbs or steps	Yes	9.3.6 (a)
Any common misuse of the wheelchair known by the manufacturer that might lead to personal injury or damage to the wheelchair	Yes	9.3.6 (b)
The following information concerning maintenance of a wheelchair is included in the user's manual for that wheelchair		9.3.7
Regular maintenance instructions accompanied by annotated illustrations including		9.3.7 (a)
Any service, maintenance and fault finding that the manufacturer intends the user to do	Yes	9.3.7 (a) (i)
Information about the types of tools or equipment needed to repair and service the wheelchair and its accessories	Yes	9.3.7 (a) (ii)
Frequency of maintenance	Yes	9.3.7 (a) (iii)
A list of materials necessary, including part numbers and procurement information	Yes	9.3.7 (a) (iv)
Identification of circumstances in which the complete wheelchair should be returned to the manufacturer, distributor or service agent for maintenance	Yes	9.3.7 (a) (v)
Instructions on methods of cleaning	Yes	9.3.7 (b)
A list of parts that are intended by the manufacturer to be readily replaced, e.g. tyres, with special ordering information. Instructions for access, removal, replacement and testing of these parts are accompanied by annotated illustrations of the part and its location in the wheelchair	Yes	9.3.7 (c)
A description of potentially hazardous maintenance operations such as tyre inflation	Yes	9.3.7 (d)
Performance check instructions for carrying out any necessary performance checks intended by a manufacturer on a wheelchair are included in the user's manual	Yes	9.3.8
Proper procedures for having a wheelchair repaired are described in the user's manual and include at least the following:		9.3.9
Identification of parts that are intended to be repaired by the user	Yes	9.3.9 (a)
Identification of parts to be serviced by the manufacturer or an authorized service facility in order to maintain the serviceability of the wheelchair	Yes	9.3.9 (b)

AS3695:1992, Clauses 8 and 9 – MARKING AND INFORMATIVE LABELING (CONT.)

Identification of any parts that can be removed and sent to the manufacturer/distributor or other party for repair	Yes	9.3.9 (c)
Identification of circumstances in which the complete wheelchair should be returned to the manufacturer, distributor or service agent for repair	Yes	9.3.9 (d)
A list of authorized service facilities	Yes	9.3.9 (e)
Information on whether replacement units are available	Yes	9.3.9 (f)
Packing and shipping instructions	Yes	9.3.8 (g)

Remarks:

The user's manual for the wheelchair should be made available for perusal by the purchaser at the point of sale.

Items 9.1 (a) (iii), 9.3.9 (e) may not be known to the manufacturer at the time that compliance with this Standard is sought. In such cases, the manufacturer may be required to demonstrate an agreement with any distributor for this information to be supplied to the purchaser.

End of remarks -----

The sample submitted for this test satisfies the relevant requirements of AS3695-1992 (except the methods indicated in this report as "not tested" and/or tested with deviations)

Yes

NOTES

1U₉₅ Uncertainty of measurements where not specified: linear $\pm 1\text{mm}$, angular $\pm 30'$, force, mass $\pm 1\%$, temperature $\pm 1^\circ\text{C}$, cycles ± 1 count. This means the true measurement is within the stated tolerances at least ninety five times in one hundred

2 All testing was carried out in a controlled environment laboratory using methods set out in the Standards documents, all deviations and additions to the Standards' methods are noted in remarks.

3 All instruments either carried valid calibration certificates throughout the test period or were checked against traceable Standards before and after use.

4 The Rehabilitation Equipment Testing Laboratory has no control over the selection of test samples. Any extension of the findings of this report to cover production items must be based on production being truly represented by the sample(s).

5 Any non-conformances are indicated in red.

END OF REPORT